

**Claims**

1. A chimeric polypeptide which is engineered to include a domain comprising a sequence that directs the attachment of at least one glycosylphosphatidylinositol molecule, wherein said polypeptide is not a ligand binding domain of a cytokine receptor and is for use as a pharmaceutical.
2. A polypeptide according to Claim 1 wherein said polypeptide is a cytokine or variant thereof.
3. A polypeptide according to Claim 1 or 2 wherein said domain comprises the amino acid sequence:  
PSPTPTETAT PSPTPKPTST PEETEAPSSA TTLISPLSLI VIFISFVLLI.
4. A polypeptide according to Claim 1 or 2 wherein said domain comprises the amino acid sequence:  
LVPRGSIEGR GTSITAYNSE GESAEFFFL ILLLLLVLV.
5. A polypeptide according to Claim 1 or 2 wherein said domain comprises the amino acid sequence:  
TSITAYKSE GESAEFFFL ILLLLLVLV.
6. A polypeptide according to any of Claims 1-5 wherein said polypeptide includes at least one glycosylphosphatidylinositol molecule.
7. A polypeptide according to any of Claims 2-5 wherein said polypeptide is selected from the group consisting of: growth hormone; leptin; erythropoietin; prolactin; TNF, interleukins (IL), IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-9, IL-10, IL-11; the p35 subunit of IL-12, IL-13, IL-15; granulocyte colony stimulating factor (G-CSF); granulocyte macrophage colony stimulating factor (GM-CSF); ciliary neurotrophic factor (CNTF); cardiotrophin-1 (CT-1); leukemia inhibitory factor (LIF); oncostatin M (OSM); interferon, IFN $\alpha$  and IFN $\gamma$ ,

8. A polypeptide according to any of Claims 1-7 wherein said polypeptide has been modified by addition, deletion or substitution of at least one amino acid residue to provide a sequence variant of said polypeptide.

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9. A polypeptide according to Claim 8 wherein said variant polypeptide is growth hormone which has been modified in at least one growth hormone receptor binding domain.

10 10. A polypeptide according to Claim 9 wherein said growth hormone receptor binding domain is in site 1 of growth hormone.

11. A polypeptide according to Claim 9 wherein said growth hormone receptor binding domain is modified in site 2 of growth hormone.

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12. A polypeptide according to Claim 9 wherein said growth hormone receptor binding domain is modified in site 1 and site 2 of growth hormone.

13. A polypeptide according to Claim 10 or 12 wherein said modification is  
20 selected from the group consisting of: histidine 18 with alanine or aspartic acid; and/or histidine 21 with asparagine; and/or glutamine 22 with alanine; and/or phenylalanine 25 with alanine; and/or aspartic acid 26 with alanine; and/or glutamine 29 with alanine; and/or glutamic acid 167 with alanine; and/or aspartic acid 171 with serine; and/or lysine 172 with serine or alanine; and/or isoleucine 179  
25 with tyrosine, as represented by the growth hormone amino acid sequence in Figure 2.

14. A polypeptide according to Claim 13 wherein said modification consists of  
the the amino acid substitutions: histidine 18 aspartic acid; histidine 21 asparagine;  
30 arginine 167 asparagine; aspartic acid 171 arginine; glutamic acid 174 serine; and isoleucine 179 threonine; as represented by the GH amino acid sequence in Figure 2.

5 15. A polypeptide according to Claim 13 wherein said modification consists of the amino acid substitutions: histidine 18 alanine; glutamine 22 alanine; phenylalanine 25 alanine; aspartic acid 26 alanine; glutamine 29 alanine; glutamic acid 65 alanine; lysine 168 alanine; and glutamic acid 174 alanine; as represented by the GH amino acid sequence in Figure 2.

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16. A polypeptide according to Claim 11 wherein said site 2 modification is to amino acid residue glycine 120 of the amino acid sequence presented in Figure 2.

15 17. A polypeptide according to Claim 16 wherein said site 2 modification is a substitution of glycine for an amino acid selected from the group consisting of: arginine; alanine; lysine; tryptophan; tyrosine; phenylalanine; and glutamic acid.

18. A polypeptide according to Claim 17 wherein said site 2 substitution is glycine 120 for arginine or lysine or alanine.

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19. A polypeptide according to Claim 1 wherein said polypeptide is an antibody.

20. A polypeptide according to Claim 19 wherein said antibody is a monoclonal antibody, or the active binding fragment thereof.

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21. A polypeptide according to Claim 20 wherein said monoclonal antibody is a humanised antibody.

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22. A polypeptide according to Claim 20 wherein said monoclonal antibody is a chimeric antibody.
23. A polypeptide according to Claim 20 wherein the active the active binding  
5 fragment is selected from the group consisting of: F(ab')<sub>2</sub>, Fab, Fv and Fd fragments; CDR3 regions; and single chain antibody fragments.
24. A polypeptide according to Claim 23 wherein said fragment is a single chain antibody fragment.
- 10 25. An oligomeric polypeptide wherein said polypeptide comprises at least two polypeptides according to any of Claims 1-24 which two polypeptides are linked via a linking molecule.
- 15 26. An oligomeric polypeptide according to Claim 25 wherein said linker comprises at least one copy of the peptide: Gly Gly Gly Gly Ser.
27. An oligomeric polypeptide according to Claim 26 wherein said linker comprises at least 2, 3, 4 or 5 copies of said linker.
- 20 28. An oligomeric polypeptide according to any of Claims 25-27 wherein said linker further comprises a protease sensitive cleavage site.
29. An oligomeric polypeptide according to Claim 28 wherein said cleavage site  
25 is sensitive to a serum protease.
30. An oligomeric polypeptide according to Claim 29 wherein said cleavage site comprises the amino acid sequence: LVPRGS.
- 30 31. An oligomeric polypeptide according to Claim 29 wherein said cleavage site comprises the amino acid sequence PGISGGGGGGSGGGG.

32. An oligomeric polypeptide according to Claim 29 wherein said cleavage site comprises the amino acid sequence: LVPRGS PGISGGGGGG.
- 5 33. An oligomeric polypeptide according to Claim 29 wherein said cleavage site comprises at least two copies of the amino acid sequence SGGGG which flank said cleavage site.
34. A nucleic acid molecule comprising a nucleic acid sequence which encodes a polypeptide according to any of Claims 1-33.
- 10 35. A vector comprising a nucleic acid molecule according to Claim 34.
36. A vector according to Claim 35 wherein said vector is an expression vector adapted for eukaryotic gene expression.
- 15 37. A cell transfected with the nucleic acid or vector according to any of Claims 34-36.
38. A method to prepare a polypeptide or an oligomeric polypeptide according to any of Claims 1-33 comprising:
- 20 i) growing a cell according to Claim 37 in conditions conducive to the manufacture of said polypeptide; and
- ii) purifying said polypeptide from said cell, or its growth environment.
39. A cell wherein said cell presents, at least at its cell surface, a polypeptide or oligomeric polypeptide according to any of Claims 1-33.
- 25 40. A method of treatment of an animal, preferably a human, comprising administering an effective amount of a nucleic acid and/or vector and/or polypeptide and /or cell according to any of Claims 1-37 or 39.

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